



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

so successfully determined. The lines of differentiation are shown already to have deployed in many directions in the earliest Cambrian time, and many lines became extinct during the Cambrian.

In order to show the magnitude of the contributions to our knowledge of Cambrian brachiopods during the past few years by Dr. Walcott, it is only necessary to make comparison with the number of forms recorded in earlier works. In Schuchert's *Synopsis of American Fossil Brachiopods*, published in 1897, 116 species and varieties of American Cambrian brachiopods are recorded, while in the present work 474 such forms are described, an increase of over 300 per cent. In the same work by Schuchert the following numbers of species and varieties are recorded from the remaining Paleozoic systems: Ordovician 319; Silurian 311; Devonian 663; Carboniferous 478. These numbers would in all cases be somewhat augmented were a new brachiopod census taken at the present time, but the increase would be in no manner comparable with the 300 per cent increase in our known Cambrian forms. Through the publication of this work of Dr. Walcott the records of the Cambrian brachiopod life are made more complete than for any other geologic period.

S. W.

The Physiography and Geology of the Coastal Plain Province of Virginia. By WILLIAM BULLOCK CLARK and BENJAMIN LEROY MILLER. With chapters on "The Lower Cretaceous," by EDWARD W. BERRY; and "The Economic Geology," by THOMAS LEONARD WATSON. Bull. IV, Virg. Geol. Survey. Pp. 274; pls. 19; 1 map.

A valuable and detailed contribution to the physiography and geology of the Coastal Plain. The formations are minutely described and well illustrated; tables are given containing complete lists of the fossils found together with their geographic and stratigraphic distribution.

The submerged portion of the Coastal Plain is comparatively smooth near the edge of the continental shelf, but nearer land there are numerous small hills with their long diameters roughly parallel to the shore line. The submarine covering near shore consists of fine sands mixed with broken molluscan shells, and local deposits of pebbles and blue mud; farther from shore finer deposits are found. The emerged portion of the plain slopes with gradually decreasing gradient to the shore line. Topo-

graphically it is composed of a set of five terraces designated, from the names of the formations covering them, as Lafayette, Sunderland, Wicomico, Talbot, and Recent.

The upper one, the Lafayette, has a maximum height above sea-level of about 500 feet. It is well preserved in Fairfax County, where it slopes gently to an elevation of about 200 feet and ends at the margin of the Sunderland terrace. The Sunderland terrace penetrates re-entrants into the Lafayette, and the two are, in places, separated by a well-marked scarp line. It is well developed in the central part of the province. Its eastern limit is the 100-foot contour. The Wicomico terrace borders the Sunderland and wraps around it about 20 feet below. From the contact it slopes gradually to the east and terminates at the escarpment representing the west edge of the Talbot terrace. The latter surrounds the Wicomico as a border and is separated from it by a sharp line of cliffs 10 to 20 feet high. The scarp is conspicuous just west of the Dismal Swamp. The eastern limit of the Talbot terrace is either a wave-cut cliff or the modern beach. The Recent terrace is almost wholly submerged.

The oldest series of sediments exposed on the Coastal Plain is the Lower Cretaceous. The lowest member of this series, the Potomac group, was laid down as a mixture of terrestrial, lacustrine, and fluvial sediments, as indicated by the absence of any strictly marine fossils, and by the presence of estuarine species of shells. The flora is varied and includes equisetids, ferns, cycads, conifers, monocotyledons, and dicotyledons. The exposed thickness of the series in Virginia is about 500 feet, but a recent well at Fortress Monroe has penetrated 1,300 feet, showing an increasing thickness to the east.

The Patuxent beds rest for the most part upon the crystalline rocks of the Piedmont area, but near Doswell they lie upon the Triassic. The outcrops are conspicuous at the head of tide in the main drainage basins. The Arundel formation is not recognized in Virginia. The relation of the Patapsco beds to the Patuxent is one of decided unconformity, and the irregular erosion surface of the Patapsco is emphasized by the marine character of the overlying deposits. These resemble the Patuxent in their varied materials but are, in general, finer. The outcrops are best seen along the Potomac River near Washington.

Upper Cretaceous beds are not exposed in the region, but borings for wells have brought up fossils which have been identified as Upper Cretaceous. The material resembles the Matawan formation of Maryland and New Jersey.

The Eocene representative, which was at first thought to consist of a single formation, and was called the Pamunkey formation, has since been differentiated into two stratigraphical units known as the Pamunkey group. The lower of these, the Aquia, consists of greensands and green-sand marls interbedded with occasional shell layers. Locally the beds have been subdivided into zones. The upper member, the Nanjemoy, overlies the Aquia conformably and is composed of greensands, but differs from it in having a greater argillaceous and less calcareous content. The contact is usually represented by a bed of white and pink clay. The combined thickness of the two formations is about 200 feet. The Eocene fauna is dominated by the presence of countless molluscan individuals; a total of 61 gastropods, 60 pelecypods, and 30 protozoans are recorded. There are also five species of reptiles and eleven of fishes.

Miocene deposits have an extensive outcrop due both to their thickness and to their gentle dip. Four formations are recognized, known as the Chesapeake group. The basal member, the Calvert, rests unconformably upon the Nanjemoy, Aquia, Patuxent, and early crystalline rocks, and consists of fine-grained sands, clays, marls, and diatomaceous earths. Gypsum and glauconite are common in the clay. The width of the outcrop reaches 30 miles and is well shown in the counties of King George, Essex, Caroline, and Hanover. Above the Calvert the St. Mary's formation is present with an unconformity that represents the complete removal of the Choptank member which is present in Maryland. The deposits are similar to the Calvert except that diatomaceous earths are lacking. The upper formation, the Yorktown, is, so far as known, conformable upon the St. Mary's. It is characteristically made up of beds of finely comminuted shells apparently accumulated in shallow water. Layers of clay and sand are also present. The faunas are rich and varied and, on the whole, indicate a marine origin for the Miocene strata.

The Lafayette formation is placed tentatively in the Pliocene. It consists of unconsolidated sands and gravel, and where the deposits have been least eroded the uppermost beds are capped by loam that varies from a few inches to 10 feet in thickness. It is markedly unconformable upon all the underlying formations, and is in contact, at one place or another, with almost every older formation in the region. It is practically unfossiliferous. Its distribution is coextensive with the Lafayette terrace.

The Pleistocene formations are all surface deposits and are, in general, represented by the terraces described in the early pages of the bulletin.

The correlation of the various deposits with those of other regions is cautiously discussed. The Patuxent is correlated with the Trinity of Texas, the Lakota of the Black Hills, the Kootenai of Montana and British Columbia, parts of the Shasta group of the Pacific Coast, the Kome beds of Greenland, and possibly with the Morrison of the Rocky Mountains. The Patapsco is probably of the same age as the Fuson formation of the Black Hills, and parts of the Lower Cretaceous of the Gulf and Pacific coasts. The data are too meager to attempt correlation of Upper Cretaceous deposits. The Aquia and Nanjemoy are correlated approximately with the Wilcox and Claiborne of the Gulf region.

E. A. S.

The Mount McKinley Region. By ALFRED H. BROOKS. With Descriptions of the Igneous Rocks and of the Bonnifield and Kantishna Districts by L. M. PRINDLE. Professional Paper 70, U.S.G.S. Pp. 234; Pl. XVIII; Fig. 30.

The field work for the report was done in the summer of 1902. Extreme difficulties were encountered, but in spite of them a distance of 800 miles was covered by the party of seven men in 105 days. Aside from the geological and economic discussions, the report includes a detailed narrative of the trip, a review of previous explorations and surveys, and a valuable statement of the complete equipment.

All rocks older than the Devonian are greatly metamorphosed and include undifferentiated sediments, with some igneous rocks that are thought to be Paleozoic. Rocks that may be still older than these are micaceous, graphitic, and quartz schists that occur in the northeastern part of the Alaska range and in the Yukon-Tanana region. The Ordovician rocks are blue limestones with black carbonaceous argillites, siliceous limestones, and calcareous slates, occurring along the north front of Alaska range. Some green argillites and cherts of 4,000 feet thickness are of uncertain age but are tentatively called Devonian or Silurian. The Devonian is represented by 200 feet of heavy fossiliferous limestone, 2,000 feet of chert, quartz conglomerate, sandstones, and slates, together with some volcanic rocks which may belong to the Carboniferous.

The Mesozoic group is abundantly represented by Lower, Middle, and Upper Jurassic rocks of great variety and thickness. There are remnants of igneous activity at the base and the top of the Jurassic.